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Planning for major rail projects: The Melbourne Metro and Regional Rail Link

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Abstract

There is widespread agreement that Australian cities need to invest in improving their transport systems. The new Infrastructure Australia (IA) agency was established to assist in this process, by ensuring better planning and prioritisation of infrastructure projects. By far the largest urban transport project recommended for funding by IA has been the Melbourne Regional Rail Link, which forms part of a larger project together with the as-yet-unfunded Melbourne Metro.

The decision to fund the RRL has been the subject of some adverse comment, for example in recent documents from the Productivity Commission. The concerns centre on the rigour with which the need for, alternatives to, costs and benefits of the proposed rail projects have been evaluated, both at state level and by IA.

This paper reviews the planning processes that led to the Metro/RRL proposals and the awarding of Commonwealth funding for the RRL. It draws on public documents and materials released under Freedom of Information, but not on the Infrastructure Australia evaluations, which have not been made public. It concludes that the criticisms of the planning and evaluation processes appear to be correct, on the basis of the material released to date.

Introduction

The rapid growth of Australian cities is leading to increasing social, economic and environmental challenges. The *State of Australian Cities 2010* report identifies car dependency, congestion and air quality as particular concerns (MCU, 2010). The report points to the need for increased investment in urban infrastructure, particularly for public transport, an argument echoed by many observers.

In its Annual Report for 2008-09, the Productivity Commission sounds a note of caution, stressing the need for rigorous assessment of proposed investments:

Projects that are well-selected and well-regulated should more than pay for the financing they require... However, infrastructure investments that are not well-allocated can impose a double burden: with future generations having lower incomes than otherwise, while still needing to service the debt incurred in financing such assets (PC, 2009, 20).

The Commission suggests that the requisite rigour in project selection has not always been apparent in recent decisions, noting that at the Commission's 2009 conference on evidence-based policy 'concerns were expressed about the rigour of some of the cost-benefit analyses that have been undertaken' (p. 21). The reference is to a paper by Ergas and Robson (2009)¹, which examined the proposed National Broadband Network and Melbourne Metro/Regional Rail Link. The Commission concludes with the following advice:

The consistent application of rigorous project evaluation methods remains fundamental to ensuring that investments are the most beneficial. This requires the identification and assessment of feasible investment options, including options to expand, upgrade or refurbish existing assets... projects with some of the biggest payoffs can involve addressing bottlenecks in existing networks. Increasing the transparency of project evaluations could play a role in ensuring a balanced assessment of benefits and costs and improving the overall quality of project analysis (p. 21).

This paper examines the planning and evaluation of the Melbourne Metro and Regional Rail Link in light of the criticisms made by the Commission, and Ergas and Robson. The Regional Rail Link (RRL) is a particularly significant project, with a total budget in excess of \$4 billion. It was awarded \$3.2 billion in Commonwealth funding in the 2009-10 Federal budget, possibly the largest amount ever awarded to a land transport project. This single project has received nearly half of the land transport funding awarded under the Building Australia Fund established in 2008 and overseen by the new Infrastructure Australia authority.

Background to the Melbourne Metro and Regional Rail Link

The Victorian government has released four transport planning documents for Melbourne in the last decade. The first of these, the *Melbourne 2030* metropolitan strategy, was launched in 2002. It focussed on land use planning, with the transport content confined mainly to 'aspirational' statements such as: 'By 2020, the government intends that public transport's share of motorised trips within Melbourne will rise to 20 per cent from the current level of 9 per cent' (Victoria, 2002a, 146). The document includes a map depicting 'potential network options' for public transport (p. 147), but neither the Melbourne Metro nor the RRL are listed among them. The accompanying 'Draft Implementation Plan: Integrated Transport' (Victoria, 2002b) proposed that the Department of Infrastructure would 'develop a metropolitan train plan' in the short term (p. 13).

¹ This is the full version of the paper. A shorter version, which omits the case study of the Melbourne rail project, appears at Chapter 8 of Productivity Commission (2010).

In place of the promised metropolitan train plan, the Victorian government released the 2004 document *Linking Melbourne: Metropolitan Transport Plan*. This listed a number of 'rail network constraints' requiring attention, including the Dandenong line, the City Loop and the approaches to the loop through North Melbourne Station. The Dandenong line constraint was to be addressed through 'design and construction of a third track... between Caulfield and Dandenong', but the remaining constraints would be dealt with through 'progressive service and timetable adjustments', 'redevelopment of North Melbourne station' and 'signalling, train operations and platform management improvements' (p. 48). There was no mention of either the Melbourne Metro or the RRL.

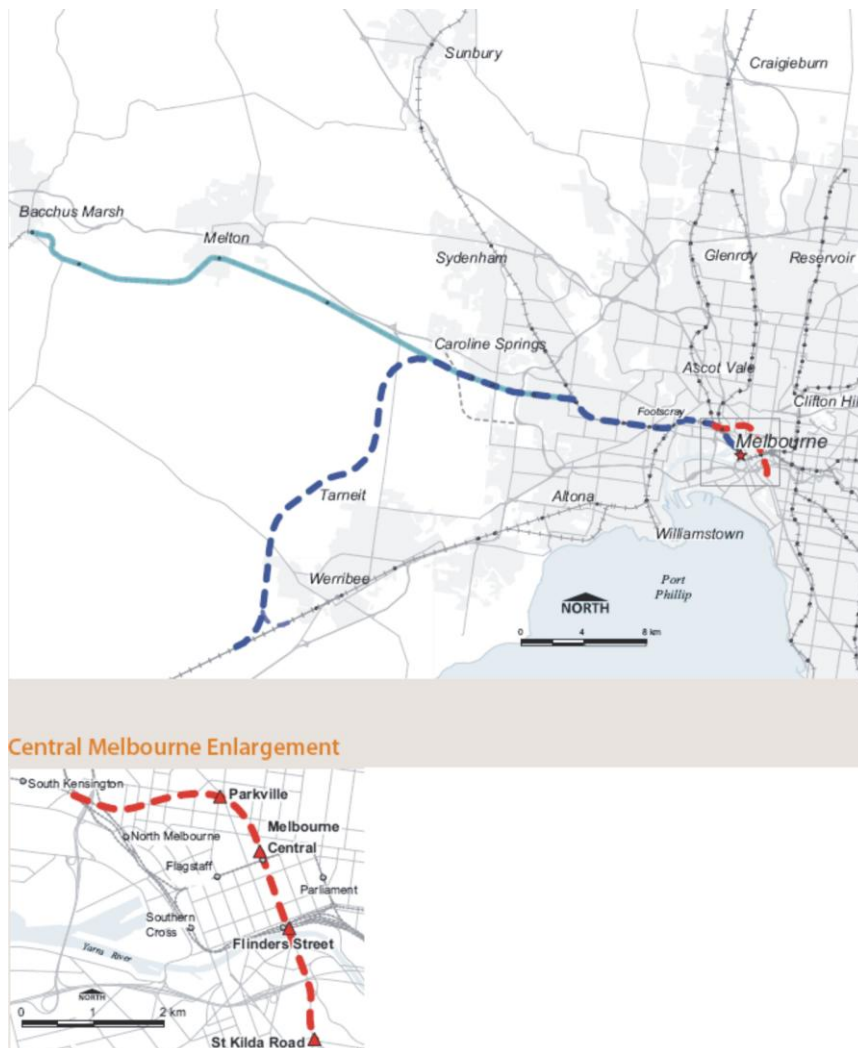
Linking Melbourne was superseded two years later by the state-wide strategy *Meeting Our Transport Challenges: Connecting Victorian Communities*. This document announced a 'rail capacity improvement program' for the period 2006 to 2030, with a total cost of \$2030 million (Victoria, 2004, 40-41, 66). The centrepiece was the third track on the Dandenong line, estimated to cost around \$1 billion, but also included were the upgrades to signalling and to North Melbourne station announced in *Linking Melbourne*. A new project was also included, involving expansion of the main western line between Footscray and Sunshine to three, and in the long term four, tracks. However, neither the Melbourne Metro nor the RRL were mentioned.

Meeting Our Transport Challenges also announced another project that appeared to have little to do with public transport. This was an 'East West link needs assessment' to 'provide a comprehensive basis for future planning of alternatives to the Monash [Freeway]–West Gate [Freeway] route' (Victoria, 2006, 54). Although the assessment was basically about planning a road link, it was to consider 'how public transport could be integrated into the corridor' (p. 54). This recommendation is the origin of the 'Eddington Report' of April 2008, named after the study's chair Sir Rod Eddington; this is discussed in the following section.

The final report in the series is the *Victorian Transport Plan* (VTP), released in December 2008. This document substantially reversed the public transport priorities of its predecessors. In particular, the third track on the Dandenong line was effectively abandoned. The section between Westall and Dandenong does not appear in the document at all, while the remaining section between Westall and Caulfield appears as part of 'Melbourne Metro: Stage 2', a project described as a 'long term option' that is not planned to commence within the life of the strategy, which covers the period to 2036 (Victoria, 2008a, 82-3, 152-3). No explanation for the change is offered.

In place of the Dandenong line third track, the VTP proposes two new major projects (see Figure 1). The first priority is the Regional Rail Link, a new double-track rail line running approximately 40 kilometres from west of Werribee, on the Geelong line, to the regional rail terminal at Southern Cross Station (incorporating the two additional tracks between Footscray and Sunshine proposed in *Meeting Our Transport Challenges*). The RRL is intended to separate regional trains from suburban services, and is not electrified. The second priority is 'Melbourne Metro: Stage 1', a new double-track tunnel for electrified trains running from North Melbourne to South Melbourne, via the Central Business District.

Figure 1. The RRL and Melbourne Metro



Source: Victoria, 2008b, 17

Note: Only Stage 1 of the Metro is shown.

The Eddington Report of 2008

Both projects are justified as recommendations from the Eddington Report, although they represent modified versions of Eddington's initial recommendations. Therefore, it is necessary to examine the Eddington Report to see how and why they were developed. There was no hint of either project in the report's initial discussion paper (Eddington, 2007), which was released in March 2007. The 'Indicative Study Area' shown on page 7 covered the area between the Eastern Freeway and Western Ring Road, matching the impression given by the study's formal title, of East West Link Needs Assessment. The majority of the routes of the Melbourne Metro and RRL fall outside this area.

Most of the document was devoted to recounting problems affecting the road system; the public transport options listed for study were 'light rail services along the Eastern Freeway,

new bus services and interchanges, and other potential solutions' (p. 8). Consistently with this understanding of its role, the Eddington team's transport expertise was confined to the planning and construction of road projects, and did not include any staff with backgrounds in public transport planning.

The next public document from the study was its final report, released in April 2008 (Eddington, 2008) along with 14 'supporting technical documents' covering issues such as demographics, environment, economic evaluation, project costing and transport modelling. The relevant section of the report is part 3.2, titled 'Melbourne's trains – a resurgence in patronage'. This argues that the surge in patronage between 2003/04 and 2006/07 means that the rail system will soon 'hit the wall', requiring 'a generational step-up in rail capacity' (Eddington, 2008, 81-2).

There are a number of aspects of the Eddington Report's discussion of rail capacity that are worthy of note. The first is that the only source cited in support of the need for a capacity step-up is the Public Transport Division of the Department of Infrastructure (now called the Department of Transport), apart from two graphs that are sourced to the Eddington Study Team itself. Strangely, although the report to Eddington from consultants Sinclair Knight Merz (SKM, 2008) discusses rail capacity extensively, Eddington does not cite this discussion.

The second issue of concern is the fact that the claimed imminent capacity crisis on the rail system was not supported by the Eddington Review's own transport modelling, carried out by Veitch Lister Consulting. Veitch Lister estimated that rail patronage would increase at a long-term rate equivalent to 2.1 per cent per annum, while the Public Transport Division projected a continuing annual increase of 6.1 per cent, leading to a doubling of numbers in only 11 years (Eddington, 2008, p. 76). Eddington chose to rely on the higher PTD figures, offering the following rationale:

Given government policy and recent changes in community travel behaviour, it is important that (when planning the future rail network) the ability to meet public transport objectives is not constrained by capacity limitations. Accordingly, the study team considers there is a compelling argument for making network investment decisions based on the higher PTD forecast (Eddington, 2008, 76).

But when one turns to the PTD report setting out the basis for the 6.6 per cent figure, it emerges that the source is a simple geometric extrapolation of patronage trends from 2003/04 to 2006/07 (PTD, 2008, p. 17). Extrapolating any geometric increase indefinitely will produce absurd results; in real-life situations, rates of increase soon begin to decline. The 2010 Victorian budget papers reveal that rail patronage in Melbourne increased by only 1.5 per cent between 2008/09 and 2009/10 (Victoria, 2010, p. 231). The PTD forecasts would also imply lower traffic levels on the road system; however, the Eddington Report uses the higher traffic forecasts from Veitch Lister as the basis for road planning.

The final notable aspect of Eddington's discussion of rail capacity is the way it hints at the existence of alternative views without naming or citing their advocates. The clearest illustration is a section entitled 'Melbourne's trains – then and now' (pp. 74-5), which notes: 'With the city's train system only recently exceeding the number of passengers carried in the

1950s, some Melburnians ask the question: if the system could carry that many people 50 years ago, why is it so hard today?’

The reference to ‘some Melburnians’ means the present writer, who is the only Melburnian to have publicly argued that the rail system is not currently at capacity. This argument was presented in a paper at the 2007 ATRF in Melbourne (Mees, 2007: a copy of this paper was provided in the writer’s submission to the Eddington study), which argued that the third track on the Dandenong line – at the time, the major rail investment proposal in Melbourne – was unnecessary, and that the capacity problems on the line could be resolved using a ‘zonal’ timetable. The paper provided an example of such a timetable, utilising the existing third track and platform at Oakleigh station. The 2007 ATRF paper also argued that Melbourne’s central rail terminal, comprised of the City Loop and Flinders Street Station, is also operating well below its design capacity. It referred to the peak in patronage that occurred in the 1950s, but also to the peak in the number of trains entering Flinders Street in the busiest hour of the peak, which actually occurred in 1929 (Mees, 2007, 1).

The paper provoked a lively discussion at ATRF, but no public response from the Department of Transport. However, the Secretary of the Department had already responded to an earlier version presented at the 2005 State of Australian Cities Conference (Mees, 2005) and subsequently reported in the press. This response, initially made in a departmental email, was subsequently published – with permission – on the website of the University of Melbourne’s GAMUT Centre (Betts, 2007). The Secretary conceded that Melbourne’s rail system was able to run more trains in the past, but that this was because fewer express services were provided, and expresses ‘eat away at the capacity of the network’. He illustrated the point by comparing the number of express services in the current timetable with the number offered in 1939. It appears the 1939 timetable was used instead of the 1929 version because the former is available on-line while the latter is not (the Department’s old timetables are at the Public Record Office of Victoria, from which I obtained my copies).²

The Secretary’s analysis was repeated almost verbatim in a report by the Institute of Public Affairs defending the franchising of the Melbourne rail system (Allsop, 2007, 18). It also appears to be the basis of the material in the Eddington Report, which presents identical figures on express and stopping trains, but cites the base year as 1940, not 1939 (Eddington, 2008, 75). Why does this matter? Firstly, because the Secretary’s analysis was devoted to defending the proposed third track on the Dandenong line, not the Melbourne Metro, which was not under discussion in 2007. Secondly, although the Department has not offered any public explanation for the decision to shelve the Dandenong project, the decision to do so implicitly accepts that the Secretary’s argument was incorrect.

The strong impression conveyed by the Eddington Report is of an argument in favour of a predetermined outcome, rather than an evaluation of alternatives. It is clear that the proposals for the Metro and RRL emerged from within the Department of Infrastructure/

² The 1939 suburban timetable is available at the rail enthusiast website <http://www.victorianrailways.net/timetables/tthome.html>

Transport, rather than the Eddington study team or its consultants. Given that the Department had just shelved the Dandenong line third track proposal, after arguing only months earlier that the project was essential to the rail system's future, one might have expected Eddington to take a more independent approach. It may be that the Eddington team's lack of expertise in public transport planning made it reluctant to question the judgment of the Department of Transport.

A Western Australian contrast

Prior to the RRL, the largest urban rail project in Australia for decades had been the Mandurah line in Perth, which opened in December 2007. In engineering terms, the Mandurah line is a much larger project than the RRL, incorporating 71 kilometres of new electrified rail line including a tunnel under the Perth CBD and 11 interchange stations. The two CBD stations are underground, while the 9 suburban stations feature purpose-built bus interchanges and extensive park-and-ride lots. Patronage, at around 60,000 trips per day, is above pre-construction projections. Yet, the cost of the Mandurah line was \$1.2 billion, less than a third the price of the RRL (allowing for inflation).

Martinovich (2008) describes the planning process that led to the Mandurah project. The process is almost the exact opposite of the events in Melbourne described above. Early planning commenced in 1990, well in advance of likely construction dates, and a number of different route and mode options were investigated and publicly debated for around a decade. Calling of tenders followed the completion in 2000 of a Master Plan, which contained detailed analysis of patronage demand, proposed services, rolling stock requirements, environmental issues and conceptual designs. Importantly, the Master Plan was produced through an open process involving extensive community participation. As Martinovich observes:

The final objective of the Master Plan was the production of a comprehensive, rigorous, credible and persuasive case for funding approval. It is absolutely essential that the above process results in a highly developed definition of the scope (and then cost) of what infrastructure and rolling stock has to be procured. The limitation of future scope creep is essential if costs are to be contained (Martinovich, 2008, p. 14).

Even this rigorous process was not the last word on the project. Following a change of government in 2002, a Supplementary Master Plan was prepared to assess an alternative, more direct, route to the CBD which had previously been ruled out on engineering grounds. The supplementary analysis established that the engineering constraints could be overcome, and so the line was constructed on the more direct alignment.

The emphasis on openness, analytical rigour and public debate and involvement represent the precise opposite of the approach adopted in Melbourne.

Infrastructure Australia

Infrastructure Australia (IA) was established by the Commonwealth government in 2008 to improve the planning and evaluation of infrastructure investment (s. 5, *Infrastructure Australia Act 2008*). In February 2008, two months before completion of his report to the Victorian government, Sir Rod Eddington was appointed chair of the authority. The 2008/09 Commonwealth budget established the Building Australia Fund to finance investments in transport and other infrastructure, with allocations to be guided by the infrastructure priorities assessed by IA.

An interim report outlining a list of proposals for further assessment was released by IA in December 2008, along with an outline of IA's 'prioritisation guidelines'. The final assessment of infrastructure priorities was released in May 2009, along with the 2009/10 budget. The budget announced an investment of \$4.6 billion for rail projects across six major Australian cities, of which 70 per cent, or \$3,225 million, was for Melbourne's RRL. A further \$40 million was allocated for 'preconstruction work' on the Melbourne Metro.

No information was released about the assessment conducted for the recommended projects; nor were the detailed submissions made by the project proponents (State and Territory governments) released: all documents were all deemed 'commercial in confidence' (Milne, 2009).³ This makes it difficult to determine the extent to which the assessment of the successful projects was carried out with the necessary rigour. Concern about the reliability of IA assessments is heightened by the fact that Sir Rod Eddington chaired the study which recommended the RRL and IA, including two months as chair of both bodies at once (this is not to suggest that Eddington did not behave properly; merely that justice needs to be both done and seen to be done).

IA has released the guidelines it uses to assess projects for funding (IA, 2008a). Project assessment takes place in two stages: a 'self-assessed audit' carried out by 'stakeholders' (i.e. project proponents), and 'solution prioritisation' conducted by IA. Prioritisation by IA is based on 'profiling', a qualitative assessment of the extent to which the proposal supports IA's 'strategic priorities', followed by 'appraisal', based mainly on cost-benefit analysis. IA also provides guidelines for the self-assessed audits of projects, which follow the standard 'systems' approach (IA, 2008, 7; cf. Mees, 2003) of goal and problem identification, problem assessment and analysis, and solution identification and assessment.

IA takes some trouble to instruct proponents on the importance of considering the full range of alternatives, requiring '[d]evelopment of a full range of interventions that might address the issue – e.g. pricing, regulatory, better use...'. The instructions specify the 'components required' as:

- A full range of option types have been identified for each deficiency/problem.
- These options have been objectively assessed, without some options having been ruled out early or favoured (IA, 2008a, 7).

³ The ACT government voluntarily released its submission to IA for the Canberra Light Rail proposal to the public.

One thing the guidelines do not make clear is the extent to which IA audits compliance with these requirements by project proponents. The discussion of project assessment in IA's December 2008 interim report is confined to the 'prioritisation' stage performed by IA itself (IA, 2008b, 67), suggesting that they may be no auditing of the self-assessments by proponents; the 2009 final report also confines its discussion to prioritisation (IA, 2009a, 7-9). IA's Infrastructure Coordinator kindly provided a response to an earlier version of this paper which confirms that IA did rely on the Victorian government's analysis of project need and alternatives.⁴

Because IA has treated both the submissions by proponents, and its assessments of those submissions, as commercially confidential, it is difficult for outside observers to know whether the guidelines have actually been complied with. Fortunately, in the case of the Melbourne Metro and RRL, additional information is available that enables an evaluation of this question. The information is:

- The Eddington Report and the associated technical documents
- An independent assessment of the Eddington rail proposals conducted for the Victorian government by Mr. Edward Dotson, together with Mr. Dotson's evidence to the Victorian Legislative Council's select Committee on Train Services
- Copies of the Victorian government's 2008 Initiative Profiling and Appraisal for the two rail projects, and associated documents, obtained under Freedom of Information.⁵

The following analysis is based on these documents, together with a 2008 report by the author analysing the initial Eddington rail proposals (Mees, 2008).

Were alternatives considered?

The purpose of this paper is not to re-argue the merits of the alternatives to the Melbourne Metro and RRL, but to assess whether they have been evaluated adequately, or indeed at all. The alternatives fall under the IA category of 'better use', and they rely on more effective use of existing infrastructure.

Currently, Flinders Street Station handles approximately 100 suburban trains in the busiest hour of the peak (8:00 to 8:59 am), compared with an all-time high of 113 in 1929 (the busiest hour then was from 5:00 to 5:59 pm). Mees (2007 and 2008) argued that this is barely half the design capacity of the station and associated City Loop, which can accommodate 24 trains an hour on each of its 8 in-bound lines, giving a total of 192 services per hour. Mees (2008) argues that current capacity limitations are the result of inefficient management and work practices, and that remedying these would provide more additional capacity than the proposed Metro.

⁴ Letter dated 24 June 2010. The author thanks the Infrastructure Coordinator for his response. It should be noted that the Coordinator disputes a number of the conclusions in this paper.

⁵ The author thanks Greg Barber MLC, who obtained these documents, for permission to use them.

Interestingly, since the publication of the two papers, the Department of Transport has placed on its website a promotional film made by the Melbourne Underground Rail Loop Authority in the early 1970s, the script of which states:

At the moment Flinders Street Station handles about 100 trains an hour during peak periods. When the Loop comes into operation, the five-station city terminal will be able to cope efficiently with twice as many trains and twice as many people (MURLA, undated).

Mees (2008) also argued that V/Line passenger trains from areas north and west of Melbourne, which do not use the City Loop or Flinders Street Station, could be accommodated by upgrading the existing Independent Goods Line, avoiding the need for the RRL, or deferring it for many years. The Independent Goods Line was constructed from 1926-28 and expanded in the early 1960s in association with construction of the standard gauge connection to Sydney. It includes a double-track flyover carrying non-electrified trains over the suburban lines to the main platforms at Southern Cross Station, a double-track bridge over the Maribyrnong River and a double-track tunnel under Bunbury Street, Footscray. At present, the flyover at Southern Cross is used by only 3 trains a day in each direction, while the bridge and tunnel average around one train an hour per track across the day (ARTC, 2010).

The Eddington Report did not discuss any alternatives to the RRL: it made no mention of the Independent Goods Line at all. Its consideration of alternatives to the Melbourne Metro was confined to the cursory dismissal discussed in the previous section of this paper. As indicated earlier, that discussion relied primarily on a Department of Transport comparison of current timetables with those for 1939, which had been produced to justify a completely different project, the Dandenong Line third track (since abandoned).

The lack of attention to alternatives was noted in a report commissioned by the Victorian Government from Mr. Edward Dotson, a former transport planner for the World Bank, who also worked for Melbourne's public transport authority from 1983 to 1991. Dotson was requested to review the public transport recommendations from the Eddington Report. His August 2008 report (Dotson, 2008) concluded that, although it was entirely appropriate to plan the Melbourne Metro and RRL as long-term projects, the case for proceeding with the projects had not been made out. Dotson raised three key concerns.

Firstly, the analysis of the two projects conducted for the Eddington Report could 'best be described as the pre- Feasibility Study Stage' (p. 3), whereas what was required was full feasibility studies. Such studies would need to include engineering analysis, service planning (including timetabling), costing and public consultation (p. 13), none of which had taken place. Dotson's outline of the requirements for a full feasibility study are similar to those Martinovich prescribes for a Master Plan.

Secondly, the Public Transport Division's estimation of future patronage (see discussion above), while 'a valid approach to forecasting short term (3-5 year) travel demands', is 'not a methodology that would be generally accepted as robust enough for forecasting longer term demand' (p. 12).

Thirdly, 'there appears to have been limited investigation of ways to increase the capacity of the existing network through a range of operational changes and investments', something Dotson called 'a critical flaw in the methodology' (p. 13). Specifically, Dotson recommended 'developing a time based and costed plan to remove operational and capacity constraints so as to progressively raise the maximum practical reliable capacity of all lines – with a target of no less than 24 trains an hour' (p. 6). It should be noted that the target of 24 trains an hour is identical to that suggested in Mees (2007) and (2008). Dotson also recommended examination of alternatives to the RRL, including 'the potential for upgrading and use of the Bunbury Street tunnel in the short term', provision of additional tracks along the existing line to Geelong instead of the RRL route through Tarneit, longer V/Line trains and purchase of rolling stock with similar acceleration/braking characteristics to suburban trains, 'so that they would use less train paths where metro and regional services have to share lines' (p. 19).

In his 2009 evidence to the Victorian Legislative Council's Select Committee on Train Services, Dotson expressed his overall concerns about the planning process:

I certainly think that an investment decision on building the tunnel should not be made until alternative ways of achieving the same capacity increases have been investigated, costed and evaluated. It would be normal practice in transport planning to do what is called an alternatives analysis... [but] The process has not been gone through; that is the point I am making. There is a process for evaluating capital investment in public transport or in roads that you need to go through. It is no good saying, 'Well, we have a problem' – we all know we have a problem – and then leaping into saying 'Let's build a rail tunnel'... The process that you go through normally takes you through looking at the options that are available to solve the problem [and] costing them... But that process is not being followed. It is being short-circuited (Dotson, 2009, 31-32).

The final set of documents are the State of Victoria's submission to IA, dated October 2008. These make it clear that the additional work recommended by Dotson was not carried out (hardly surprising, given that only two months had passed!). The publicly-released 'Prioritisation Submission' simply cites the Eddington Report as justification for both projects (Victoria, 2008b, 15-16). The confidential 'Initiative Profiling' (Victoria, 2008c) provides detailed cost-benefit results, as well as more detailed argument in support of the claim that the rail system is approaching capacity. But the capacity argument is mainly a reproduction of the material in the PTD report relied on by Eddington (PTD, 2008); there is no discussion, let alone evaluation, of alternatives.

The only mention of alternative options comes in a short supplement to the profiling document, which lists the key assumptions adopted for the cost-benefit analysis. Assumption (h) reports that the analysis of the RRL includes purchase of new rolling stock and 'the costs of extending some station platforms to allow for 8 car [train] sets (costs of doing this for the existing Geelong line assumed to be too prohibitive)' (Victoria, 2008d). This seems to suggest that the simple option of lengthening some station platforms was rejected as an alternative to a \$4 billion-plus project because it was assumed to be prohibitively expensive!

The emphasis both Dodson and Mees place on improving public transport management echoes the views expressed by IA itself in its 2008 interim report. While advocating major new investment, IA warns:

Simply investing in more capacity is not the only requirement to improve public transport in Australia. Public transport is not administered and managed in Australian cities as well as in many cities overseas. With more emphasis on public transport in the future, and with more funds set to be invested, governments need to ensure that public transport meets best practice and is as efficient as possible (IA, 2008b, 45).

However, there is no evidence to suggest that IA actually followed this advice in assessing the RRL and Melbourne Metro.

IA released new submission guidelines in October 2009, which include a discussion of the lessons learned from the 2008-2009 prioritisation process. Concern is expressed about the way proponents handled the self-assessment of projects under IA's Audit Framework. In particular, '[a] broad range of options to solve the problems was not considered – in particular many submissions jumped directly to large-scale, expensive capacity enhancements, without any consideration of 'non-build' solutions such as changes in regulations, governance arrangements or introducing demand management measures to make better use of existing infrastructure' (IA, 2009b, 6).

The document does not indicate how IA intends to address this problem, other than by exhorting proponents to do better. IA's actions – which rewarded the Victorian government for not examining alternatives with over \$3 billion from the Building Australia Fund – may have spoken louder than its words.

The cost-benefit analysis itself

The Eddington Report commissioned cost-benefit analyses of its recommendations from a team of consultants led by Meyrick and Associates. Two packages of options were assessed: one combining the road and public transport recommendations, and another including only the public transport proposals. It should be noted that the Eddington rail projects included what is now the RRL, along with both stages 1 and 2 of the Melbourne Metro. Table 1 below shows the reported results.

These figures suggest a reason why no cost-benefit analysis was published for the road proposals alone. Subtracting the costs and benefits in the second column from those in the first suggests that the BCR for the road projects would have been in the region of 0.45, or 0.73 with 'wider economic benefits' included.

The figures also suggest that the BCR for the rail projects, while superior to the road proposals, is still not very impressive, at either 1.0 or 1.2 depending whether WEBs are included. Cost-benefit analysis is subject to a significant margin of error, and a ratio of 1.0-1.2 is not high enough to give confidence that the benefits really will exceed the costs, let alone provide better value than other possible calls on public funds. The New Zealand

government, for example, requires projects to demonstrate BCRs in excess of 4.0 – without WEBs – before they can receive a ‘high’ rating for economic efficiency (MOT, 2008, 58).

Table 1. Eddington Report assessment of costs and benefits (\$billion)

	Combined road and Public Transport	Public Transport only
Costs (net present value)	15.0	7.9
Benefits (NPV)	11.1	7.9
Benefit-cost ratio	0.7	1.0
‘Wider economic benefits’	3.3	1.3
Total benefits, including WEBs	14.4	9.2
BCR including WEBs	1.0 [actually, 0.96]	1.2

Source: Meyrick et al, 2008, Table 2.

Ergas & Robson (2008) have expressed concern about two ingredients in the CBA for the Melbourne rail projects. They argue that the analysis of WEBs, which applies ‘multipliers’ based on UK research into factors such as agglomeration economies and labour force participation, is unsupported by theory or evidence, and is likely to be an overestimation. It is noteworthy that the ACT submission to IA for the Canberra Light Rail proposal – prepared for the ACT by PricewaterhouseCoopers – did not include WEBs when calculating BCRs, on the basis that “at this early stage, any estimate of the magnitude of the WEBs would be subject to a high degree of uncertainty” (ACT, 2008, p. 59).

Ergas and Robson also criticise the inclusion of additional public transport fare revenues among the benefits, on the basis that this amounts to double-counting. However, this criticism is less valid, as the Victorian Government appears to have complied with the Australian Transport Council’s *Guidelines for Transport System Management in Australia*, which suggest fares should be included as a ‘resource correction’ (ATC, 2006, vol. 4, p. 31).

A matter of greater concern, that was not noted by Ergas and Robson because they did not have access to the relevant documents, is the changes to costs and benefits between the April 2008 Eddington Report and the October 2008 Victorian government submission to IA. Eddington estimated the costs of the RRL and Melbourne Metro Stage 1 at \$7.0 billion (Eddington, 2008, 214); by the time the Victorian Transport Plan was released in December, this had risen to \$8.9 billion (Victoria, 2008a, 152-3). This should have caused the benefit-cost ratio to fall below 1, even with WEBs. However, the net present value of the combined benefits of the RRL and Metro Stage 1 is given in the Initiative profile as \$10.3 billion, considerably higher than the Eddington estimate of \$9.2 billion for the larger project including

both stages of the Metro. The RRL benefits alone are said to be \$6.2 billion (Victoria, 2008c, 30, 35).

So the BCR went up, not down. BCR figures were deleted from the documents released under Freedom of Information, but the Secretary of the Department of Transport, in a letter to *The Australian*, reported that they were 1.5 without WEBs and 1.7 including them (Betts, 2009). This is the kind of convenient result that calls out for scrutiny, but it is not clear that IA rose to the challenge.

The first thing to note is that even these higher BCRs represent a relatively low rate of return: less than half the figure required to qualify for 'high economic efficiency' in New Zealand. If the 'best' urban transport infrastructure project in the nation has such a low BCR, then perhaps the widespread claims of under-investment in urban transport infrastructure require reconsideration. At the very least, this result suggests that more attention should be paid to obtaining better value from existing infrastructure.

The 'benefits' of the RRL in the second evaluation, which were included in the documents released under FOI, consist almost entirely of savings to motorists. The value of travel time savings for rail passengers is listed as zero (Victoria, 2008c, 35), since the new RRL route is actually less direct for Geelong line passengers than the current route (cf. Figure 1). The only benefits to rail passengers are wait time savings from more frequent services, reduced crowding and improved reliability: in total, these comprise a negligible 1.9% of project benefits. The virtual absence of benefits to rail users from one of the most expensive rail projects in Australian history should have made IA especially keen to scrutinise the justification for, and the other benefits of, the project closely.

The remaining benefits are mainly the result of an apparent change in the CBA modelling methodology compared with that used for the Eddington Report. Unfortunately, the full CBAs have not made public, so it is necessary to rely on the rather sketchy account provided in Victoria (2008d). Normally, the Department's Melbourne Integrated Transport Model (MITM) would be used to estimate future road traffic levels, as was the case with the Eddington Study. Instead, traffic volumes were calculated by adding to predicted traffic estimates the rail passengers 'crowded off onto the road' due to capacity constraints. The number of these passengers was estimated using the PTD growth rates discussed above, rather than the traffic model itself, and assuming that virtually all additional demand would be 'crowded off' the rail system because it is currently at capacity. This additional road traffic was then fed into Veitch Lister Consulting's Zenith traffic model and the effect on travel times estimated. The model was then re-run with the 'crowded out' travellers returned to the rail system, and the difference in travel times calculated.

This approach produces dramatically higher travel time savings than would have been the case had the ATC guidelines been followed, but it cannot be defended. The MITM traffic estimates already include lower rail patronage than the PTD figures, as discussed above, and consequently higher road traffic volumes. Adding passengers 'crowded off' rail exogenously to the model counts many of the resulting car trips twice. And again, the savings are premised on the idea that the rail system is facing a capacity crisis that cannot be addressed other than by construction of the RRL and Metro.

Postscript

Developments with the RRL since it gained IA funding approval have confirmed the weakness of the planning processes conducted at state level. Although the project was funded in May 2009 on the basis that it was 'shovel-ready', no works had commenced as of August 2010.

Instead, the project has undergone a classic instance of what Martinovich calls 'scope creep', a direct result of the absence of the kind of rigorous analysis that would have informed a Master Plan. The Eddington Report and the Victorian submission to IA had both proposed that the RRL would pass through the densely-settled district of Footscray in a new tunnel. However, when the site was investigated in 2010, it became apparent that the existing Bunbury Street tunnel precluded construction of a second tunnel. Instead, it was proposed that the existing rail reservation should be widened, requiring the demolition of existing homes and businesses. Months of uncertainty followed before it was announced, in July 2010, that some 90 properties would be compulsorily acquired to accommodate the RRL. The owners of these premises had received no previous notification that their properties could be affected by the project.

Meanwhile, as indicated above, the increases in rail patronage across Melbourne that had formed the basis for the RRL and Melbourne Metro proposals may have levelled off. Currently, rail patronage is growing at around two per cent per annum, instead of the predicted six per cent.

Conclusions and recommendations

Transport planning in Sydney is notorious for a history of long-term plans being announced, then replaced, at regular intervals, with major investment proposals committed, then abandoned. The history described in the early part of this paper suggests that the situation in Melbourne is similar: the main difference seems to be that the Melbourne problems have been less extensively reported by the local media and commentators.

The Melbourne Metro and RRL proposals are the direct result of this history. As Dotson and Mees have both noted, lower-than-anticipated rail patronage meant that for many decades, planners and operators were not required to utilise existing infrastructure at best-practice levels of efficiency. When rail patronage began to increase after about 2003, the initial reaction was to propose a major infrastructure project (the Dandenong line third track), which has subsequently been found to be unnecessary. This project was then replaced by the more expensive Metro and RRL proposals, which also emerged without serious study, let alone master planning.

Once these projects emerged, during the Eddington Review, the possibility of less expensive alternatives was immediately discounted. What followed was an exercise in justification of a predetermined outcome, rather than evaluation of a range of options. In the meantime, the problems of management and governance that have led to the inefficient use of existing

infrastructure remain unaddressed. This planning process presents a dramatic contrast with the rigorous and participatory master planning adopted for the Mandurah line in Perth.

The assessment of the Metro and RRL by Infrastructure Australia should have challenged this approach, but it apparently did not. Instead, IA relied on the Victorian government's assessment of the need for the project, and failed to consider possible alternatives. It may be that the lack of detailed public transport planning expertise inside IA precluded serious scrutiny of the justification offered for the project. IA also seems to have accepted cost-benefit ratios that would not be regarded as high in comparable jurisdictions, and analytical approaches that would also raise eyebrows in those places. The reasons for this are less clear.

It must be stressed that the conclusions in this paper are based on the documents that have been released to date, either publicly or through Freedom of Information. It may be that IA has additional material that explains the apparent problems, but this documentation has not been made public.

The first thing that could be done to improve current evaluation practices is to increase transparency. As Ergas and Robson (2009, 42) argue, 'there is no reason why CBAs should not be publicly disclosed as a matter of course'. Infrastructure Australia itself has noted this problem and foreshadowed changes aimed at 'maximising the amount of information that can be made public' (IA, 2009a, 9).

The second improvement is real public participation in project planning (at the State level) and prioritisation (at the national level). Perhaps surprisingly, given his long experience at the World Bank, Dotson is critical of the lack of participation in planning for the Melbourne Metro and RRL at the State level:

Normal practice [internationally] is to go in for full public consultation, including involving the public in writing the brief for the studies... Let me be clear. When I talk about public consultation I mean a process that is not submission based. You actually go out to the public and... you ask them for their view, and you ask them what they think about the issue. You ask them to make suggestions about how you may solve the problem, and then you go away and take that on board, together with the stuff from the technical people, and work up some solutions and come back to the public and say, 'Here we have three solutions. These are the costs, these are the benefits and these are the downsides we see. What do you think?' (Dotson, 2009, 37).

Public participation is not just about gaining community support for a project; it can also result in more efficient and effective solutions to transport problems. Martinovich (2008, pp. 13-14) attributes the success of the Mandurah project in Perth partly to the extensive consultation process, which reinforced the need for rigorous development of plans and costings. Other examples confirm the validity of this approach: for example, the City of Zurich has possibly the western world's most effective public transport system, but a critical factor in its success was public rejection of bureaucratically-generated plans to replace its tram system with an expensive metro. Similarly, the success of alternatives to the car in

Vancouver is in large measure due to modification through public pressure of transport plans devised by public officials (Mees, 2010, chapters 6, 8, 12).

Finally, there also needs to be more public and independent scrutiny of project analyses performed by proponents. Ergas and Robson argue for independent auditing of proposals and post-completion review of projects by an independent body reporting to parliament (pp. 42-3). To enable auditing of this kind for public transport projects, it will be necessary to improve the skill base in IA and other Commonwealth agencies, which has atrophied during the long period of Federal neglect of urban public transport. This will be particularly important if serious attention is to be paid to evaluating alternatives to expensive projects.

The Commonwealth government has showed renewed interest in funding urban public transport after a long absence from the field. It is imperative that the benefits of this policy change are maximised by ensuring that funding goes to the projects that will produce the greatest value for money.

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